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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,664

03/17/2005

Philip Head

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09/27/2007

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

09/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,664

Applicant(s)

HEAD, PHILIP

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-13 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 11, 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 2-9, 12, 13 and 23-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/7/07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 2-9, 12-13 and 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, “inward radial deformation” lacks antecedent basis. It will be interpreted as referring to a method of manufacture, i.e., --the outer tube is at least partially secured to the inner tube by inward radial deformation--.

In claims 25-26 the phrase “an outer tube...rotationally fixed to the inner tube” is indefinite. The stator is located in the “chamber” formed between the inner and outer tube (claim 1, lines 7-10). The inner and outer tubes are thus part of the stator. Therefore, it is not clear what the phrase “rotationally fixed” means with regard to the outer tube since it, by definition, does not rotate. It will be taken to mean that the outer tube does not rotate, i.e., that it is simply “fixed” to the inner tube.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 2-4, 8-9, 12-13 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Russell et al. (US 4,687,054). Regarding new independent claim 25, Russell

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teaches an electric motor for installation in a bore to power a downhole tool, the motor comprising: an inner tube 222 (Fig.2A) centered on an axis and forming on the axis a flowpath (not numbered, Fig.2A); an outer tube (housing) 200 coaxially spacedly surrounding the inner tube and axially and rotationally fixed [sic] to the inner tube (Fig.2A); and seals (O-rings) 227 between the inner and outer tube forming therewith a chamber separate from the flowpath (c.4:19-21) a stator having windings 250 and laminations (rings) 252,254 in the chamber (c.4:51-68); and a rotor (armature) 300 connected to the tool and having in the inner tube 222 a magnetic element ("magnetic sections") 316,318,320 co-acting with the stator (Fig.2A).

Regarding claim 2, note plural windings 250 in first and second stators, axially spaced from each other (Fig.2A).

Regarding claims 3 and 26 the stator has first and second axially similar parts (e.g., windings 250 or rings 252,254; Fig.2A) and the rotor has respective first and second parts (e.g., magnetic sections 316,318,320; Fig.2A) similarly axially-spaced and juxtaposed with the respective stator parts.

Regarding claim 4, methods of manufacture, i.e. the step of "secured by swaging" are not given weight in apparatus claims. Russell teaches the inner tube 222 secured in the outer tube 200.

Regarding claim 8, as best understood, the outer tube is secured to the inner tube. The recited method of securing "[by] inward radial deformation" has not been given patentable weight in the apparatus claim.

Regarding claim 9, the inner tube 222 comprises a non-magnetizable material such as fiberglass, brass or non-magnetic steel (c.4:15-16).

Regarding claims 12 and 23, DC lines 90,92,94 are used to power Russell's motor (stator) windings 130-140 (c.8:5-13). The connection of a power supply (electrical supply lines 10-12; Fig.1) to the windings are carried out by means of cable 232 forming a connection in the sealed chamber (Fig.2A; c.4:28-37).

Regarding claims 13 and 24, the motor connects to a sucker rod pump (c.1:6-9).

4. Claims 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Conrad et al. (US 3,631,275). Regarding new claim 25, Conrad teaches an electric motor for installation in a bore to power a downhole tool, the motor comprising: an inner tube (liner) 17 (Fig.2) centered on an axis and forming on the axis a flowpath (in rotor chamber R; c.2:30-32); an outer tube (shell) 16 coaxially spacedly surrounding the inner tube and axially and rotationally fixed [sic] to the inner tube (Fig.2); and seals (end rings) 18/19 between the inner and outer tube forming therewith a chamber (sealed-in closure) separate from the flowpath a stator 12 having windings 15 and laminations 14 in the chamber (c.2:10-14; Figs.1&2); and a rotor 13 connected to the tool and having in the inner tube 17 a magnetic element (i.e., laminations inherently comprising magnetically-permeable material, not numbered) coacting with the stator 12.

Regarding claim 24, Conrad's motor is connected to a pump (c.2:15-17).

5. Claims 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Luenberger (US 3,135,884). Luenberger teaches an electric motor for installation in a bore to power a downhole tool, the motor comprising: an inner tube (sleeve) 15 (Fig.1) centered on an axis and forming on the axis a flowpath (in rotor space; c.2:48-59); an outer tube (casing) 1 coaxially spacedly surrounding the inner tube and axially and rotationally fixed [sic] to the inner tube (Fig.1); and seals (flanges & sleeves) 3/13/5/14 between the inner and outer tube forming

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therewith a chamber separate from the flowpath (c.2:1-6) a stator having windings 6 and laminations 2 in the chamber (c.1:50-56); and a rotor 16 connected to the tool and having in the inner tube 15 a magnetic element (i.e., laminations forming poles, not numbered, Fig.1) co-acting with the stator.

Regarding claim 24, Luenberger's motor operates a pump (c.1:11).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 4, 8-9, 13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Conrad et al. (US 3,631,275) and Luenberger (US 3,135,884) in view of Mendez (US 5,320,182). Conrad and Luenberger as described above each individually teach applicant's invention as recited in claim 25, but do not teach plural motors, i.e., "wherein the stator has first and second axially similar parts, and the rotor has respective first and second parts similarly axially spaced and juxtaposed with the respective stator parts" (claim 26).

Mendez teaches a downhole pump including plural dc motors 60a-60d mounted serially in axially stacked relation, each with stator 62a-62d and permanent magnet rotor (not shown, Fig. 1 B, c.5:12-27) so as to generate sufficient power to drive the pump to produce a desired flow rate and overcome pressure differentials (c. 1:36-43 & 51-65)

It would have been obvious to incorporate plural motors per Mendez into the downhole devices of Conrad or Luenberger to generate sufficient power to drive the pump to produce a desired flow rate and overcome pressure differentials.

Regarding claim 4, methods of manufacture, i.e. the step of “secured by swaging” are not given weight in apparatus claims. Both Conrad and Luenberger teach the inner tube secured in the outer tube.

Regarding claim 8, as best understood, the outer tube is secured to the inner tube in both Conrad and Luenberger. The recited method of securing “[by] inward radial deformation” has not been given patentable weight in the apparatus claim.

Regarding claim 9, Luenberger’s sleeve 15 is made of plastic such as Teflon disposed within the bore of the lamination stack 2 so as to seal the outer stator (c.1:72-c.2:6).

Regarding claim 13 Conrad’s motor is connected to a pump (c.2:15-17). See also Luenberger c.1:11.

8. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell (US 4,687,054). Russell substantially teaches applicant’s invention as claimed in claim 25 including plural stator and rotor elements, but does not teach the manufacturing steps of separately forming rotor shaft elements and securing them together in series (claim 5); or separately forming outer tube elements and securing them together in series (claim 7).

However, these features would have been obvious in view of Russell since methods of manufacture are not given weight in apparatus claims. Alternatively---if construed as apparatus claims---“separate” (rotor) shaft elements or “separate” outer tube (stator) elements would have been obvious since it has been held that separation of parts, e.g. separation of Russell’s rotor shaft 304 or outer tube (housing) 200, into plural parts involves ordinary skill. *Nerwin v. Erlichman* 168 USPQ 177 (1969).

Regarding claim 6, separation of the rotor shaft would provide first and second rotor shaft elements axially spaced from each other and corresponding to respective first and second stator parts (i.e., coils, Fig.2A) which are also separated axially from each other.

Allowable Subject Matter

9. Claims 10-11 and 21-22 are allowed. Applicant incorporates the indicated allowable subject matter of “a pressure compensation means in the chamber” into claims 10 and 21.

Response to Arguments

10. Applicant's arguments with respect to new independent claim 25 and respective claims 2-9, 12-13 and 26 depending therefrom have been considered but are moot in view of the new grounds of rejection.

Response to Amendment

11. The substitute specification filed 07 August 2007 has been entered.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gold teaches a fluid tight joint construction for use in submersible motors comprising a cover *b* placed between a casing *a* and a tubular lining *h* (Fig.1) with a seal formed by jointing material *g* such as rubber or wool (c.1:42-47). This provides a fluid-tight construction between parts (c.1:1-6).

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be

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reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

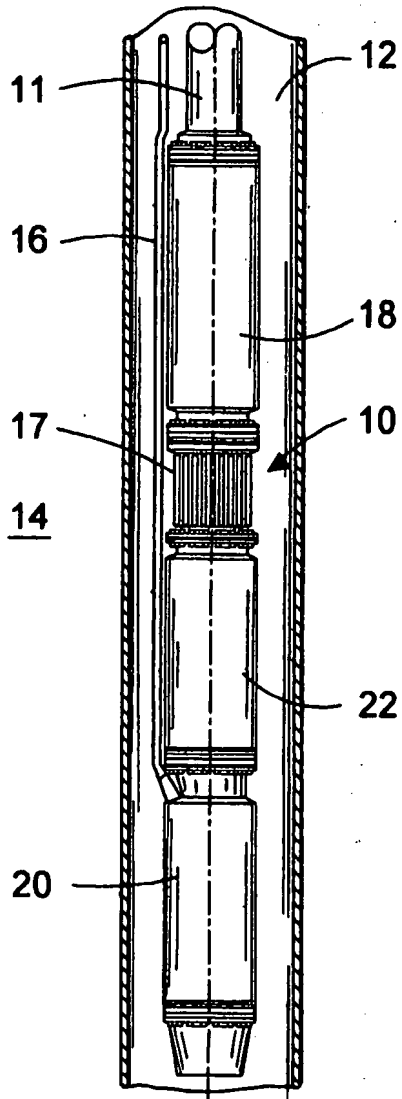


Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
24 September 2007



*Drawings OK
Bm 8/22/07*



PRIOR ART
Fig. 1

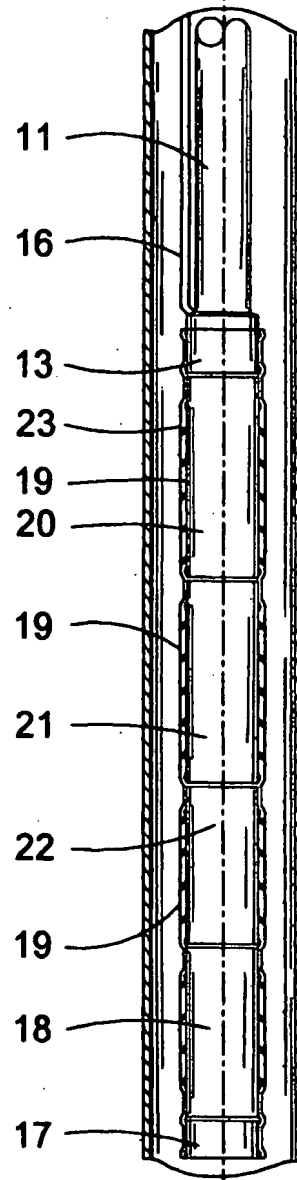


Fig. 1a